BODIES AND ANGELS: THE OCCUPANTS OF PLACE FOR ARISTOTLE AND DUNS SCOTUS

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by Helen S. Lang

In the context of a lengthy theological discussion, John Duns Scotus investigates angels.[1] He asks, among other things, whether angels in any sense occupy place.[2] Earlier, Duns had argued that angels are pure spirit containing no matter whatever;[3] nevertheless, because they are created, angels must be finite beings and finite causes. All finite causes, and here Duns quotes Aristotle's *Physics*, must, in order to produce an effect, be together with that effect. For any two things to be together, they must in some sense occupy place. Consequently, the answer to the question of whether angels in any sense occupy place clearly must be "yes." This "yes"-required by the finitude of immaterial angels—raises within a theological context a complex problem usually found exclusively in physics: the problem of place.

For Duns, and numerous thinkers after him, the problem of how angels occupy place involves both physics and theology, cause/effect relations was well as the power and uniqueness of God. Physics, which Aristotle defines as the science of things containing an intrinsic principle of motion, comes to be the science of created beings, while theology constitutes the study of God. On the one hand, as pure spirit, angels resemble God—indeed they are the closest to God of all created being—and angels raise the problem of spiritual presence; on the other hand, God's infinite power exceeds absolutely any power of angels which, as created, are finite and so operate according to the laws of all finite creatures. The laws concerning how finite creatures operate as causes constitute the domain of physics. Consequently, the problem of how angels occupy place as articulated by Duns raises important issues in medieval physics, motivated by a theological requirement.

Indeed, the relation between physics, or science generally, and theology is at stake in the problem of how angels occupy place. We might note that Duns's

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[2]Joannes Duns Scotus, *Ordinatio* 2, dist. 2, pars 2, q. 1–2, *Utrum angelus sit in loco* and *Utrum angelus requirat determinatum locum*. I cite this work throughout from his *Opera omnia*, ed. Commissio scotistica (Vatican City 1950–) 7 (1973) 241–268.

[3]Ibid. dist. 1, q. 6, *Utrum angelus et anima differant specie*: Solutio propria, par. 315ff.

discussions of angels, which are now largely ignored, were enormously important and widely read by his contemporaries. The origin of the well-known jibe as to how many angels can dance on the point of a needle is unknown—its history before the eighteenth century remains obscure—but we may surely speculate that it rests squarely on this type of discussion. This problem, how angels occupy place, establishes one important issue between physics and theology in which physics is put to work for a theological end. As physics becomes progressively more independent from theology, the problem of angels in place, which subordinates physics to theology, stands as an obvious and natural candidate for ridicule by "moderns" wishing to emancipate physics further from theology.

The concept of place—I shall argue this point more fully later—is so central to physics, as conceived by both Aristotle and Duns, that this concept cannot be shifted without affecting the very nature of physics itself. Consequently in a precise and rather limited problem, the concept of place required for the location and operation of angels, we possess direct access to two much wider issues critical to fourteenth-century scholasticism, the nature of physics and the relation of physics to theology. By examining the problem of how according to Duns angels occupy place, we can grasp quite precisely at its origin what is at stake in the larger issue of the subordination of physics to theology.

Within a theological context, then, Duns raises the problem of place, and so must define place. Citing Aristotle's *Physics*, he defines it as the outermost containing boundary of the contained, that is, place is the immediate container of the corporeal.[4] The peculiar inappropriateness of Aristotle's *Physics* as an authority for a problem concerning angels appears as soon as we consider Duns's discussion of place in its theological context—a context hardly found in Aristotle. Indeed, for Aristotle, physics in general seems to be tied to theology only in the loosest possible way.[5] This is not the case, however, for Aristotle's commentators, especially the Commentator, Averroes—and it is through these commentaries and their transmission of Aristotle's *Physics* that the issues for Duns take shape.

According to an Averroistic reading of *Physics* IV, the relation between place and body is so strong that it is necessary in itself and not even God can violate it. Consequently, God's power seems to be limited by this natural necessity, and theology seems to be subordinated to physics. These views led to the famous condemnation of Averroism in 1277 by the bishop of Paris, Étienne Tempier.[6] Tempier firmly asserted the power and freedom of God over and above any natural necessity. If God so wishes, he can create a stone which is not in place, or move the

[4]Ibid. dist. 2, pars 2, q. 2, par. 219: "Exponendo autem ista per ordinem, dico quod omne corpus tale (aliud a primo) est primo in loco, hoc est in continente praecise et immobili; hoc enim intelligitur per illam definitionem Philosophi IV *Physicorum* 'De loco,' quod scilicet 'locus est ultimum corporis continentis, immobile, primum.' "

[5]Cf. H. Lang, "Aristotle's Proof of a First Mover and the Relation of Physics to Theology," *New Scholasticism* 52 (1978) 500–517.

[6]For a brief account of the various strands of this controversy, cf. E. Bettoni, "The Originality of the Scotistic Synthesis," in *John Duns Scotus 1265–1965*, ed. J. K. Ryan and B. M. Bonansea

world in such a way as to create a vacuum, that is, place empty of body.[7] Here we reach the heart of the difficulty: an apparent contradiction between the authoritative physics of the time, Aristotelian/Averroist physics, and what Tempier considered to be a necessary truth of Catholic theology.

Duns's doctrine of angels as both wholly immaterial and finite thus creates a difficulty for him. On the one hand, because angels are finite they must occupy place in order to be causally efficacious; consequently, Duns requires physics. On the other hand, the very physics to which he must turn relates place and its occupant so intimately that God's power seems limited: the physics required by Duns's angelology seems to entail heresy. The problem of angels in place stands, we might say, at the very joint between physics and theology with the result that the solution to this problem must satisfy conditions of both physics and theology—and, perhaps harder, must satisfy physicists as well as theologians. Duns believes he can provide this solution.

Duns's treatment of angels dates from about 1305, and it is not surprising to find him quoting Tempier. When the problem of place leads to theologically dangerous conclusions, Duns explicitly rejects Aristotelian/Averroist physics in favor of Tempier and the 1277 Condemnation of Averroism.[8] Thus Aristotle and Tempier are quoted on the same page. Condemned physics and its very condemnation are both cited within a single discussion. In citing these two quite different authorities, Duns clearly believes he can in some way resolve the incompatibility of Aristotelian physics and Christian theology. Thus within the context of a problem concerning angels, Duns intends in one and the same stroke to solve a problem in physics, the problem of place and its occupants, to maintain a theologically orthodox position concerning God and the distinction between God and angels, as well as to establish the domains of theology and physics as compatible with one another.[9]

This paper will examine the argument of Duns Scotus with an eye to understanding (1) the Aristotelian background in the science of physics and the pressure on Duns to revise it, (2) the problem of angels and place as theologically requiring an excursion into physics, and (3) the actual occupancy of place by angels. In

(Washington 1965) 29–33; P. Duhem, *Le système du monde: Histoire des doctrines cosmologiques de Platon à Copernic* (Paris 1954–1958) 6.20–29; E. Gilson, *History of Christian Philosophy in the Middle Ages* (New York 1955) 408; and Edward Grant, "The Condemnation of 1277, God's Absolute Power, and Physical Thought in the Late Middle Ages," *Viator* 10 (1979) 211–244, esp. 236.

[7]Gilson 402–410.

[8]Duns Scotus, *Ordinatio* 2, dist: 2, q. 1, par. 200–202; q. 2, par. 231. Cf. also Bettoni (n. 6 above) 28–44, and Gilson 465.

[9]Medieval thinkers before Duns discuss a variety of problems concerning angels. St. Bonaventure and St. Thomas, for example, both provide extended and well-known discussions. However, these, like all such discussions before 1277, are marked by an optimism concerning the relation of theology, philosophy, and science. Only after the crisis of Averroism and the Condemnation of 1277 do we find tensions and an initial breakdown in the relations among these disciplines. Duns is one of the earliest major figures after the Condemnation, and so his discussion of angels, God, and place deserves special attention in its attempt to resolve these tensions.

conclusion, we can evaluate the distance from Aristotle's *Physics* to the physics of angels articulated by Duns, evaluate the position concerning angels in place as Duns develops it, and indicate further historical reverberations.

I. THE ARISTOTELIAN PROBLEM OF PLACE

Physics, as Aristotle defines it, considers all things containing an innate principle of motion; as such, physics includes the elements, plants, animals, and all their parts.[10] The most important kind of motion—primary both in itself and as a requisite to all other types of motion—is change of place, that is, locomotion.[11] Place, then, stands as the conceptual cornerstone of any Aristotelian physics of moving bodies. We cannot here consider the whole of Aristotle's physics of place and moving body—the exact content of which is often debated. Rather, I shall focus on those points of Aristotelian physics that form the background to Duns's discussion of angels—points which he requires but must revise.

According to Aristotle, place itself is neither matter nor form, but must be defined as "the innermost motionless boundary of what contains."[12] Place, in contradistinction to movable bodies, is immobile and indestructible. Whatever the internal ambiguities of Aristotle's discussion of place, he clearly intends to maintain the dependence of any contained body upon its containing place, and the independence, that is, primacy or separability, of place from the body which is composed of matter and form contained in place.[13] The relation between body and place stands at issue here.

All natural bodies exhibit motion because they are composed of form and matter. Motion by definition is an intrinsic property of natural bodies—a transition from possibility (matter) to actuality (form) within the body itself.[14] Furthermore, all possibility is aimed at, yearns for, development and completion in actuality. This point is crucial. Possibility can never be passive relative to actuality: in the absence of hindrance motion must occur; possibility always and everywhere is actualized.[15] This principle stands behind the bulk of Aristotle's physics.

Aristotle argues that the only perfect motion is change of place, that is, locomotion. The most nearly perfect kind of locomotion is circular locomotion.[16] In the cosmos, this locomotion is the eternal unvarying actualization of the potential for change of place exhibited by the fixed stars turning overhead. All other

[10]Aristotle, *Physics* II, 1, 192b9–11.

[11]Ibid. VIII, 7–9.

[12]Ibid. IV, 4, 212a20; cf. *De caelo* I, 3, 270b5–9.

[13]Aristotle, *Physics* IV, 4, 210b34–211a6. All translations of Aristotle are taken from the standard Oxford edition translated by Hardie and Gaye. All references to Aristotle are to the Oxford Classical Text, ed. W. D. Ross (Oxford 1966).

[14]Aristotle, *Physics* III, 1, 201a25–29; VIII, 1, 251a9–10.

[15]Ibid. I, 9, 192a22–25.

[16]Ibid. VIII, 7.

motion by definition presupposes locomotion and in fact depends upon the first motion of the stars. In short, all motion presupposes locomotion; locomotion presupposes place; all motion presupposes place. In nature, the outermost circumference of the stars is not itself in place but constitutes place for all else. Within "this place," that is, the stars, the cosmos is a plenum with earth at its center, and outside of the stars is nothing—neither place nor the possibility of being in place.[17]

But although body requires place, place is separable from body. "Separable," for Aristotle, does not in the case of place mean "emptiable of any and all body." In fact, place identified as the cosmos must always be occupied—a vacuum or void is a contradictory concept and impossible in nature.[18] Rather, "separable" means able to be apart in definition or in thought, and in fact independent of any particular moving body. Thus, body depends upon place both by definition and as a real condition of its intrinsic motion; place is independent of body in definition and, although in the cosmos place must always be occupied by some body, place is independent of this or that particular body. Place as required by every mobile body, but itself independent of any given body, is critical in the history of Aristotelian physics.

For Aristotelian physics, the most important internal feature of the place/body relation turns upon the distinctions of place as inherently constituting fixed directions, for example, up or down, and bodily motion as intrinsically and dynamically directional. According to Aristotle, all motion must be either natural or violent.[19] Motion is natural when a body moves toward its natural place—if a body reaches its natural place, it fulfills its intrinsic impulse and rests there; motion is violent when a body moves away from its natural place—if a body is resting in its natural place, it contains no intrinsic impulse to move, and so can be dislodged from this place only by force applied from the outside.[20]

Place constitutes four directions, up, down, left, and right. In the cosmos, for example, "up" is the outermost circuit of the stars and "down" is the center of the earth. There are four natural elements, earth, air, fire, and water, composing every body.[21] Each element, as part of its nature, possesses a directional motion; for example, fire by its nature goes "up" toward the outermost heaven which is the natural place of fire.[22] Thus place, by constituting the four directions, serves as a necessary condition of motion, and motion is part of the intrinsic nature of the elements. Motion from potency to act must occur whenever possible: given the opportunity, fire by its nature will always go "up" as defined by place.[23] The conclusion follows in Aristotelian physics that fire by its nature must always occupy

[17]Aristotle, *De caelo* I, 9, 279a12–21.

[18]Aristotle, *Physics* IV, 6–9.

[19]Ibid. V, 6, 230a18–20, 231a10–12; VIII, 4, 254b20–24; cf. also *De caelo* I, 3, 269b32–270a13.

[20]Aristotle, *Physics* V, 6, 230b10–21; VIII, 4, 254b24–27, 255a20–30.

[21]Ibid. IV, 1, 208b14–19.

[22]Aristotle, *De caelo* IV, 2, 310a14–311a14.

[23]Aristotle, *Physics* III, 2, 202a3–12; VIII, 4, 255a34–255b; *Metaphysics* IX, 5, 1048a5–8.

place. Indeed, on this conception, place, which is itself immobile and indestructible, defines the motion of any element as "natural" or "violent"; and all motion in the cosmos is so defined.

When Christian theologians inherited this position it carried with it implications wholly foreign to Aristotle. Aristotle has no notion of a creating God. Indeed, for Aristotle, God's causality seems to be limited to an eternal production of the first motion of the cosmos, that of the outermost sphere of the heavens, and God produces this motion by being an object of love: the world eternally "runs after" God who stands apart from the world as a thinking on thinking.[24]

But for all Christian theologians, God created the heavens and the earth *ex nihilo*. As created, the world depends radically upon God for its very existence. Hence, no natural relation or natural dependence of one creature upon another can either supercede the absolute role of God as Creator or limit God's infinite power. But as Aristotelian physics came to be interpreted, the relation between body and place did exclude God, and so constitute a natural limit on God's power: body must occupy place, and even God cannot create a body outside of place as defined by the outermost sphere of the heavens. Thus Aristotelian physics produced a properly theological conclusion, which in its turn provoked a series of condemnations culminating in that of 1277. The problem of angels in place provides us with a case study in the relation between physics and theology shortly after the crisis which produced these condemnations.

II. ANGELS AND PLACE: THE PROBLEM FOR DUNS SCOTUS

Duns opens the discussion of whether angels are in place by distinguishing God as infinite from angels as finite.[25] He has already argued that God is immaterial and that angels, too, are immaterial; consequently, God and angels at first glance look very much alike. Many Christian philosophers, Saint Bonaventure for example, distinguish God from created finite beings, including angels, by matter, as a principle of limitation within all created being.[26] Only God is purely immaterial;

[24]Aristotle, *Metaphysics* XII, 7.

[25]Duns Scotus, *Ordinatio* 2, dist. 2, pars 2, q. 2, par. 204: "Contra conclusionem huius opinionis arguitur: Primo sic, quod sic ponens contradicat sibi ipsi, quia in quaestione illa 'Utrum Deus sit ubique,' probat quod sic per hoc quod secundum Philosophum VII *Physicorum* 'movens est simul cum moto,' et Deus est primum efficiens et ideo potens movere omne mobile; et ex hoc concludit quod Deus est in omnibus et praesens omnibus. Quaero quid intendit per hoc concludere? Aut Deum esse praesentem, hoc est 'moventem'—et tunc est petitio principii, quia idem praemissa et conclusio; et nihil ad propositum, quia ibi intendit concludere immensitatem Dei secundum quam Deus est praesens omnibus. Aut intendit concludere illam praesentiam quae competit Deo in quantum est immensus, et tunc ex operatione alicubi—secundum ipsum—sequitur praesentia illa quae pertinet ad immensitatem divinam (quae est Dei in quantum Deus est), ita quod prius naturaliter erit Deus praesens in quantum immensus quam in quantum operans; et hoc concluditur ex hoc quod est praesens per operationem, sicut ex posteriore prius. Igitur a simili in proposito, prius naturaliter erit angelus praesens alicui loco per essentiam, quam sit praesens sibi per suam operationem."

[26]St. Bonaventure, *In II Sent.* 3, I, I, i-ad *Utrum angelus*; cf. E. Gilson, *The Philosophy of St. Bonaventure*, trans. D. I. Trethowan and F. J. Sheed (Paterson, N.J. 1965) 205–209, 216.

angels must include some sort of matter. Duns rejects this position and argues that angels as well as God are immaterial. Consequently, he requires some other ground on which to distinguish angels as finite from God as infinite. This ground lies in God's operation as infinite in contrast with the finite operation of angels and, as we shall now see, it brings us face to face with the problem of place.

Infinity, according to Duns, is the single most important and distinguishing predicate of God.[27] But divine infinity is not to be understood in terms of unlimited immateriality versus limited materiality; rather, God's infinity must be understood in terms of God's operation, that is, his infinite power and causal efficacy. God as infinite exercises absolute power and is free of any restriction or qualification.

In Duns Scotus's technical language, we can best express God's infinity by saying that God alone is "immense." "Immensity" indicates the absolutely infinite power and perfection of God taken in himself, prior to any external relation. In this priority, immensity may be contrasted with omnipresence. Omnipresence too is enjoyed by God alone and expresses his infinity. But omnipresence represents God's infinity externally, that is, God as present throughout creation. Because immensity rests wholly on God's intrinsic infinity, immensity stands independently of any reference to anything outside of God. As independent and internal to God, immensity stands as logically prior to all external relations of God to finite being, such as omnipresence. For our purposes here, the most important conclusion following from the notion of God as immense is that, as infinitely powerful prior to any external relation, God can act at any distance from his effect if he so wills.[28] Obviously, God is free from any necessary relation to place. As Duns Scotus expresses it, the presence of God to his effect is required *less* than that of angels to their effect.[29]

Angels, although immaterial like God, do not share divine privileges of power and causation. Angels suffer restrictions common to all finite causes. One of these restrictions requires that they be "together" with their effects, and being "together" in turn requires that they occupy place. Because God and angels are alike as immaterial, this requirement separates God's infinite power to produce an effect from the finite power possessed by angels. Thus it establishes and preserves the uniqueness of God.

The problem of place, then, arises quite strictly because of a theological requirement. In fact, this theological requirement affects the very formulation of

[27]Gilson (n. 6 above) 409–410, 464.

[28]Duns Scotus, *Ordinatio* 2, dist. 2, pars 2, q. 2, par. 205: "Confirmatur ratio, quia minus videtur de Deo quod oporteat ipsum esse praesentem per essentiam ubi operatur, quam angelum." Cf. also Gilson (n. 26 above) 146; and E. Gilson, *Jean Duns Scot: Introduction à ses positions fondamentales* (Paris 1952) 408. All translations from the French are mine.

[29]Duns Scotus, loc. cit.: "Confirmatur ratio, quia minus videtur de Deo quod oporteat ipsum esse praesentem per essentiam ubi operatur, quam angelum, quia illud quod est illimitatae potentiae videtur posse agere in quantumcumque distans, sed illud quod est determinatae et limitatae virtutis requirit determinatam approximationem passi ad hoc quod agat in ipsum; nullum enim est agens virtutis limitatae et determinatae cuius actio non possit impediri per nimiam distantiam ad passum, et ita magis videtur necesse ponere angelum esse praesentem, ad hoc quod agat."

the problem of place here. Duns establishes the problem to be resolved, whether angels occupy place, by first quoting and then interpreting Aristotle's *Physics*. In the formulation of the problem, we can first measure the distance from Aristotle's problem of place to Duns's problem of place.

In *Physics* VII, Aristotle argues that if motion is to occur, the mover and moved must always be "together."[30] To prove this point, Aristotle distinguishes four types of mover/moved relations (pushing, pulling, carrying, and twirling) and considers each type separately.[31] "Together," Aristotle explains, means that nothing intervenes between the mover and the moved; they are "in contact"—their extremities, that is, outermost limits or boundaries, touch.[32] Clearly, Aristotle's conception of his problem concerns how one body can move another body, taking change of place, locomotion, as the model for all motion and so, as we saw above, presupposing place as the requirement of all motion.

Duns quotes *Physics* VII and concludes that since angels are finite they must be together with their effects; and so angels too must occupy place. But, according to Duns, angels involve no body or matter; they are immaterial. When Duns quotes the Aristotelian dictum that movers must be together with the moved, for "mover" we understand not "body," as in Aristotle's context, but "spiritual finite cause in contradistinction to infinite cause," in Duns's context. At the very outset, then, Duns, motivated by the need to guarantee God's infinity, replaces Aristotle's problem concerning how one body moves another with the problem of how any finite cause/effect relation takes place. Hence, the problem of place for moving bodies becomes recast as the problem of place for finite causes, which in the case of angels—and angels are the specific case under consideration here—are purely spiritual and contain no matter whatever.

Just as Duns recasts Aristotle's notion of "mover" from the dictum "the mover must be together with the moved," he must also recast the notion of "together." For Aristotle, "together," that is, in contact or touching, clearly expresses a relation between two bodies. Since Duns will discuss spiritual creatures rather than bodies, he requires a concept which allows cause/effect relations to occur. So, Duns interprets Aristotle to mean that causes and effects must enter into a direct relation with one another, that is, the cause must be "present" to the effect.[33] But "presence"—a word ringing with Platonic overtones—signifies a highly formal relation between cause and effect in which concepts such as matter or body are irrelevant. Duns requires such a concept precisely because his subject is spiritual angels.

[30]Duns Scotus, *Ordinatio* 2, dist. 2, pars 2, q. 2, par. 204, quotes Aristotle, *Physics* VII, 2, 243a32–35. Aristotle makes the same point in *Physics* VIII, 5, 256b20. From ancient times to current debate, *Physics* VIII has been understood as a better argument than that of *Physics* VII, which has variously been called "physical," "invalid," "crude." Cf. A. C. Pegis, "St. Thomas and the Coherence of the Aristotelian Theology," *Mediaeval Studies* 25 (1973) 87; H. Lang, "God or Soul: The Problem of the First Mover in Physics VII," *Paideia: Special Aristotle Issue* (1978) 86–104.

[31]Aristotle, *Physics* VII, 2, 243a16–17.

[32]Aristotle, *Physics* V, 3.

[33]Duns Scotus, *Ordinatio* 2, dist. 2, pars 2, q. 2, par. 204–205. For par. 204 see n. 25 above; for par. 205 see n. 29 above.

Hence, the problem which Duns sets himself in this discussion is to allow immaterial angels sufficient occupancy of place so as to be *present* to their effects. At the very outset of the argument, then, the shift in the problem, a shift from locating bodies to locating immaterial angels, simultaneously produces a shift away from the restricted problem of bodies as mover or moved things necessarily "together," to the more formal problem of *any* cause/effect relation requiring that the cause be "present" to the effect. The conception of place cannot but be recast in its turn, as it is developed by Duns to resolve this problem.

Consequently, in this resolution of the problem of how angels occupy place we possess a fully articulated case in which a theological problem, the necessity of distinguishing between God and angels, leads into the domain of physics, the problem of place. The relation between theology and physics is crucial here: theology supplies the occasion and motivation for science; physics supplies the mechanism which fully distinguishes angels from God and thereby preserves God's uniqueness. But, as I hope to show, physics cannot be shifted from the theologically neutral enterprise of Aristotle to the theologically orthodox enterprise of Duns without effecting profound changes in the nature of physics itself. Consequently, this case provides us, written small as it were, those issues which written large take us to the breakdown of the relation between physics and theology.

III. PLACE AND ANGELS ACCORDING TO DUNS

Duns, at the outset of his discussion agrees with Aristotle that "every body, except the first, that is, the outermost sphere of the heavens, is in place," and then quotes Aristotle's definition of place as the innermost motionless containing boundary; furthermore, as Aristotle says, place is immobile and indestructible.[34] But Duns immediately claims that the immobility and indestructibility of place require a further distinction: place, in addition to being immobile and incorruptible essentially (*per se*), is incorruptible mathematically (*secundum aequivalentiam*), but is not incorruptible accidentally (*per accidens*).[35] Duns develops his position in two distinct steps: he first uses his distinction between incorruptibility *per se, secundum aequivalentiam*, and *per accidens* to develop the notion of place required to locate angels as finite causes, and he then systematically distinguishes the various senses in which angels may be said to occupy place, that is, how angels are present to their effects. In my analysis, I shall follow Duns through these steps as he develops them, noting as it develops the distance between Duns's concept of place and that quoted from Aristotle's *Physics* with which he begins. In conclusion, I shall evaluate Duns's position both in relation to Aristotelian physics and on its own conceptual grounds. Finally, I shall suggest how the problems considered by Duns remain unresolved in later science and philosophy.

[34]Duns Scotus, *Ordinatio* 2, dist. 2, pars 2, q. 2, par. 219; see n. 4 above. Cf. Aristotle, *Physics* IV, 4, 212a21.

[35]For a general discussion of place according to Duns Scotus, cf. Duhem (n. 6 above) 207–213.

According to Duns, in addition to the immobility and incorruptibility which place possesses *per se*, that is, by virtue of its very definition as given by Aristotle, place is "incorruptible according to equality of comparison to local motion" (*locus habet . . . incorruptibilitatem secundum aequivalentiam per comparationem ad motum localem*).[36] The immediate sense of this rather technical expression is not difficult. If a given body of fixed size moves from place A to place B, it has indeed changed place in the sense of moving from one location to another location; but the body has not changed place in the sense that the two locations are dimensionally equal to one another. The two locations are of exactly the same size and shape and as such are interchangeable.[37] Hence, place is "incorruptible" in the sense that a given fixed body must always occupy the same dimension. Behind this apparently simple point stand important implications.

Making the point generally, we may say that Duns allows place a dimensional incorruptibility which stands independently of change in location. Size, shape, and dimension are mathematical criteria applicable anywhere precisely because size and shape do *not* change with location. Place as dimensional in this sense renders location irrelevant, and so conceptually formalizes Aristotle's notion of place by emancipating the concept of place from location "up" or "down." The point here deserves careful consideration.

We saw above the strong sense in which place as directional and the motion of the elements as directional lock together body and place in Aristotelian physics. Although two places are equal and interchangeable dimensionally, they cannot be in the same location up and down. Since, for Aristotle, location of a place up or down is an intrinsic feature of place, the absolute directional location of a place is part of its definition, and no two places can be identical on the basis of dimension alone. Furthermore, direction, as an intrinsic characteristic of place, defines place as natural or violent relative to any motion of the elements. Correspondingly, all elemental motion is necessarily natural or violent according to its direction relative to its place: fire moves naturally when it goes up but earth moves violently when it goes up. When Duns shifts the concept of place from location, which entails directionality, to dimensionality, which renders location irrelevant, he severs the Aristotelian tie between place and direction.

[36]Duns Scotus, *Ordinatio* 2, dist. 2, pars 2, q. 2, par. 224: "Dico igitur quod locus habet immobilitatem oppositam motui locali omnino, et incorruptibilitatem secundum aequivalentiam per comparationem ad motum localem."

[37]Ibid. par. 227: "Secundum probo, quia licet locus corrumpatur moto eius subiecto localiter, ita quod, moto aere localiter, non manet in eo eadem ratio loci quae prius (sicut patet ex iam probato), nec eadem ratio loci potest manere in aqua succedente, quia idem accidens numero non potest manere in duobus subiectis—tamen illa ratio loci succedens (quae est alia a ratione praecedente) secundum veritatem est eadem praecedenti per aequivalentiam quantum ad motum localem, nam ita incompossibile est localem motum esse ab hoc loco in hunc locum sicut si esset omnino idem locus numero. Nullus autem motus localis potest esse ab uno 'ubi' ad aluid 'ubi,' nisi quae duo 'ubi' correspondent duobus locis differentibus specie, quia habentibus alium respectum—non tantum numero sed etiam specie—ad totum universum; ex hoc illi respectus qui sunt tantum alii numero, videntur unus numero, quia ita sunt indistincti respectu motus localis sicut si tantum essent unus respectus."

When place can be thought of strictly in terms of its dimensionality, the "naturalness" of place for one element or another predicated on the directionality of place disappears. "Natural" or "unnatural" no longer stand as meaningful predicates when place is identified as dimension without reference to directional location.[38] Consequently, elemental motion no longer is necessarily natural or violent on the basis of direction. In short, dimensional interchangeability of place as distinguished here by Duns largely "neutralizes" the natural necessity apparently entailed in an Aristotelian account of inherently directional elemental motion in inherently directional place.

A number of consequences follow here, for theology as well as for physics. Theologically, as we noted above, the natural necessity based on directionality of motion and place interlocks body, motion, and place in Averroist developments of Aristotle's physics, and so generates apparent limitations of God's power. With his first distinction Duns unlocks the ties which constitute this natural necessity, and so announces that his development of the concept of place stands as unambiguously orthodox. The resulting consequences for the place/body relation here are quite striking.

Bodies which occupy place have a more arbitrary relation to their place and to one another than they do within Aristotelian physics. Furthermore, dimensional incorruptibility of place is logically distinct from the immobility of place given by Aristotle's definition—place is the innermost motionless containing boundary which in the cosmos is constituted by the outermost circuit of the heavens. By basing the incorruptibility of place on dimensional identity, Duns will be free to abandon the Aristotelian immobility and incorruptibility of place as tied to mobile body in the cosmos—and, indeed, place according to Duns is corruptible accidentally (*per accidens*).

In his next words, Duns denies to place absolute incorruptibility in relation to bodies which occupy place. Even though place is immobile and incorruptible in its definition (*per se*) and dimensionally (*secundum aequivalentiam*), place is corruptible in an accidental way (*per accidens*): every time a body changes place that place which it occupied ceases to exist in the sense of being occupied by that particular body.[39] Body must always be in some given place, but a particular location bears no relation to a body as soon as that body passes on to a new location.[40] Just as dimensionality serves to free place from its tie to body, so the accidental corruptibility of place serves to free body from its tie to place. The place/body relation critical to

[38]Gilson (n. 28 above) 410.

[39]Duns Scotus, *Ordinatio* 2, dist. 2, pars 2, q. 2, par. 229. "Sic dico in proposito quod locus est immobilis per se et per accidens, localiter—tamen est corruptibilis moto subiecto localiter, quia tunc non manet in eo illa ratio loci; et tamen non est corruptibilis in se et secundum aequivalentiam, quia necessario succedit illi corpori—in quo fuit illa ratio loci—aliud corpus, in quo est alia ratio loci numero a praecedente et tamen eadem praecedenti secundum aequivalentiam per comparationem ad motum localem." On Ockham's analysis and understanding of Duns Scotus on this point, cf. H. Shapiro, *Motion, Time and Place according to William Ockham* (St. Bonaventure 1957) 124–125.

[40]Gilson (n. 28 above) 410.

Aristotelian/Averroist physics is cut, we might say, from both directions. Again, the point deserves consideration.

For Aristotle, all body requires place, but place is independent of any particular mobile thing. Bodies require place in a realist physics because the intrinsic characteristics of place supply the necessary conditions for the motion of the elements as intrinsically directional; consequently, all motion must be either natural or violent because every place is either natural or unnatural. For Aristotle, "down" does not cease to exist for fire when it rises to its natural place, "up"; rather, "down" continues to be what it always is for fire, an unnatural place. But Duns, with dimensional identity of place, disconnects place and direction, so that place is no longer natural or unnatural as a consequence of its directional location. With the accidental destructibility of place when a particular body leaves it, Duns abandons place as a requirement for body and motion. For Duns, body is able to exist independently of any particular place, while particular places are destroyed relative to a body which leaves them.[41]

This point, the accidental corruptibility of place, develops the now partially arbitrary relation between place and body. We may note that nothing remotely resembling it may be found in Aristotle's *Physics*. According to Duns, the absolute incorruptibility of place is preserved in its mathematical dimensions, and place has been stripped of intrinsic directionality. Dimensionality emancipates place from Aristotle's directional or natural location. Consequently, place no longer provides the necessary conditions for intrinsically directional motion. Now, the accidental corruptibility of place emancipates body from location as a necessary condition of motion. The necessary relation in Aristotelian/Averroist physics between place and body is exploded, and in a moment we shall have a rock able to be outside of place in the sense of outside the "real" Aristotelian cosmos as defined by the outermost circuit of the heavens.

This disjunction of place and body completes Duns's reconstructive account of place. He now asks if body must be in place, and answers his own question: *yes*, according to Aristotle—body must occur in place as constituted by the outermost heavens—but *no* according to "the Catholics" and Tempier.[42] Here Duns Scotus explicitly rejects the authority of Aristotle and Aristotelian/Averroist physics. In truth, Duns no longer needs Aristotle because he has effectively replaced Aristotle's conception of place with his own.

[41]We might note, as an aside, that Duns Scotus's theory of motion is strikingly similar to that of Descartes. Cf. Descartes, *Philosophical Works of Descartes: The Principles of Philosophy*, trans. E. S. Haldane and G. R. T. Ross (New York 1931), pt. 2, prin. 25: What movement properly speaking is, p. 266.

[42]Duns Scotus, *Ordinatio* 2, dist. 2, pars 2, q. 2, par. 231. "Oppositum tamen videtur esse verum secundum catholicos, quia Deus posset facere lapidem, non exsistente aliquo alio locante corpore—aut separatim exsistentem ab omni alio corpore, quia posset illud facere extra universum; et utroque modo esset 'non in loco,' et tamen esset idem secundum omni absolutum in se. Per nihil igitur absolutum in alio, requirit necessario esse in loco, sed tantum habet necessario potentiam passivam, qua posset esse in loco; et hoc, posito loco in exsistentia actuali, et praesentia eius respectu alicuius corporis locantis."

Before we proceed to the issue of a body outside the cosmos—a critical issue between physics and theology—we must note the consequence for physics as a science effected by this new conception of place. I should like to suggest that the concept of place is so fundamental to physics as a science that place cannot be so transformed without affecting physics in its entirety. Hence, the problem of place, as articulated here by Duns and as distinguished from Aristotle, reveals a much wider conceptual shift at the level of physics itself.

Aristotle defines physics as that science which investigates objects containing within themselves a principle of motion.[43] The formal definitions reached by physics must, in order to be real definitions, bear upon their objects in such a way as to include a reference to this motion or matter, which is the principle of motion in natural things. With dimensional identity, Duns abandons place as necessarily referring to motion or matter. At this point, Aristotle's definitions—with which Duns began his discussion—are transformed from a physics, which always terminates in material reality, that is, the cosmos as it involves motion, to a formal analysis, which may terminate in mathematical identity, that is, dimensionality, apart from motion or mobile bodies.[44] This more mathematical concept of place preserves the absolute incorruptibility of place as identical dimensions, and so retains place as a permanent but more mathematical concept for a more mathematical physics. We are fully prepared for a body outside the cosmos—a body outside of place as location in the cosmos, but not outside of place as dimensionality.

Here we reach the critical question affecting both physics and theology: must every body—excepting the first, that is, the outermost heaven which forms the boundary of the cosmos and defines all place—must every body, because of its corporeality, necessarily be in place? Aristotle unequivocally responds "yes" to this question, identifying the required place with the cosmos as he conceives it.[45] In its Averroist development this "yes" is understood as a limitation of the power of God. However, Dun tells us, the opposite answer is true according to the Catholics. God is able to make a rock existing separately from every other body because he can, if he so wishes, make a rock outside of the cosmos; therefore, in a way the rock is "not in place."[46]

Duns does not hesitate to use his concept of place as dimension to override the Aristotelian/Averroist sense of place as location. A hypothetical rock, created

[43]H. A. Wolfson, *Crescas' Critique of Aristotle: Problems of Aristotle's Physics in Jewish and Arabic Philosophy* (Cambridge, Mass. 1929) 80.

[44]To call Duns's physics Aristotelian, as is often done, wholly fails to appreciate this point. "We shall thus find Scotus' treatment of space curiously inadequate . . . seeing that he scarcely does more than reproduce piecemeal the first four chapters of the fourth book of Aristotle's *Physics*"; C. R. S. Harris, *Duns Scotus: The Philosophical Doctrines* 2 (Oxford 1927) 123; this view is more recently expressed by L. Bowman, "The Development of the Doctrine of the Agent Intellect in the Franciscan School of the Thirteenth Century," *Modern Schoolman* 50 (1973) 251.

[45]Aristotle, *Physics* IV, 5, 212a31–32, 212b18–22; *De caelo* I, 7, 275b11 and 9, 27a20–23.

[46]Duns Scotus. *Ordinatio* 2. dist. 2. pars 2. q. 2. par. 231; see n. 42 above.

outside the cosmos, would be in place in the sense of being self-identical within its own dimensions. In or out of the cosmos, a rock (any body) must be contained within its own surfaces and so retain its own dimensionality; consequently, it must be in place insofar as place is nothing other than dimensionality. There is nothing which necessarily requires this rock to be in place in the Aristotelian sense of being contained within the cosmos as constituted by the outermost sphere of the heaven.[47]

Finally, then, the rock is both in place, as dimensional, and not in place, as located in the cosmos. Duns understands the question, "Can God create a rock which is not in place?" as referring to Aristotle's doctrine of place as identified with cosmic place constituted by the outermost circuit of stars.[48] A rock, like all body, involves matter; and matter, as the principle of individuality and motion, must be "someplace."[49] The identification within Aristotelian/Averroist physics of all place with location in the cosmos is the source of the problem concerning the apparent limit on God's power. Aristotelian/Averroist physics leads to heresy because, finally, it is bad physics—it fails to provide a full, and hence true, account of place.

Duns gives the theologically correct answer, "Yes, God can create such a rock," by correcting this "bad" physics and so resolving the ambiguity in it. At the opening of the argument, Duns quotes and apparently agrees with Aristotle's definition of place as well as with the main characteristics of place—place is the incorruptible and immobile innermost containing boundary. Duns wishes, he tells us, only to distinguish further the notion of "incorruptible." As we have seen, this further distinction leads us to place as dimensional and to the conceptual separation of place and body. If we take Duns strictly at his word, he has merely extended Aristotelian physics by further distinguishing a notion already there but which in Aristotelian/Averroist physics remained undeveloped.

But we do well to note, first, that this development is wholly foreign to Aristotle and, second, that the development of the original definition of place occurs just at that theological moment most critical to physics. Duns shifts the identification of place away from the cosmos, as constituted by the outermost circuit of the stars, to the more abstract concept of dimensionality independent of location in or out of the cosmos. For Duns, the new sense of place as dimension is more central to physics than place as location, because place as dimension at one and the same stroke serves to preserve a central requirement of physics and to preserve the theological requirement of God's infinite power. Just as the authoritative Aristotelian physics requires that a rock as material must be in place, so it is, as Duns shows, in its dimensionality wherever it be; but God in his infinite will and power can, if he so

[47]For an interesting development of some of these possibilities, cf. Wolfson (n. 43 above) 96ff.

[48]Duns Scotus, *Ordinatio* 2, dist. 2, pars 2, q. 2, par. 231; cf. n. 42 above. Also cf. Gilson (n. 28 above) 409ff.

[49]See n. 48 above.

wishes, create a rock not in place, in the more limited sense of location within the cosmos.

However, in Duns's account here one ambiguity in the place/body relation remains. From the point of view of physics, this ambiguity is serious; and from the point of theology, the resolution of this ambiguity most specifically prepares a place for angels, thus preserving the uniqueness of God. With the resolution of this ambiguity Duns can proceed to the final stage in the argument, distinguishing the senses in which angels occupy place.

For Aristotelian/Averroist physics, bodies necessarily occur in place, the cosmos, and this necessity explains why we see the world structured as we do. Aristotelian/Averroist physics unites place and body in order to account for the apparent fact that all body is located within our geocentric cosmos. As we have just seen, Duns strips place and body of their intrinsic relation and redefines place as dimensionality, thereby freeing body of necessary location within the cosmos. But place as dimensional so effectively emancipates body from location in the cosmos that body is *equally* able to be in or out of the cosmos. Duns has severed the Aristotelian/Averroist place/body relation in order to render physics theologically orthodox; but can he now, as does Aristotelian physics, explain why the cosmos seems to be structured with all mobile body occupying place within the outermost circuit of the stars? To put the question more generally, can physics "corrected" by Duns maintain its integrity as a science of real mobile body?

Duns explains that although, as we have clearly seen, there is no necessity that all body be inside the closed circuit of the cosmos, there is nothing intrinsically contradictory in such a view.[50] All body is able to be within the cosmos and it looks to us as if God willed that it be this way, even though he could equally well have willed otherwise. For Aristotle, all body *must* be in the cosmos, because of the relation between material body and cosmic place; for Duns, all body *happens* to be in the cosmos, through God's free will.[51] This is to say, body is not located within the cosmos because of its material nature—such a view would in fact return one to Aristotelian natural necessity; rather, body always stands within the cosmos because of an ability which attaches to body through God's free will, and which is not itself material.

Duns calls the ability possessed by body to be in cosmic place without contradiction "passive potency."[52] Passive potency (in its very name contrasted with the dynamic potency possessed by body in Aristotelian physics) is the primary principle which places body into the cosmos.[53] Strictly speaking, passive potency is

[50]See n. 48 above.

[51]On this point cf. J. C. Doig, "Denial of Hierarchy: Consequences for Scotus and Descartes," *Medieval Culture* 21 (1977) 259.

[52]Duns Scotus, *Ordinatio* 2, dist. 2, pars 2, q. 2, par. 231 (n. 42 above).

[53]Ibid. par. 236: "Ad propositum igitur ista applicando, de angelo, dico quod angelus non necessario est in loco, quia multo magis posset fieri sine creatione creaturae corporalis, vel facta

nothing other than ability to be in place without contradiction. Even though angels, and all body as well, need not be located in cosmic place, there is no contradiction in their being so located; consequently, they may be said to possess passive potency for location within the cosmos, and this potency is exercised at God's will. Here we reach the critical joint between physics and theology, the essential moment in Duns's argument. Again, we must pause to consider the point.

As a concept, passive potency operates simultaneously within physics and theology. On the one hand, passive potency preserves the integrity of physics as a science by serving as a principle of location for all body, and angels when necessary, within the cosmos. As a principle of location, passive potency performs the job for Duns's physics that natural necessity performs for Aristotelian/Averroist physics. But while passive potency serves physics as a principle of location, it nevertheless operates through God's free will, while natural necessity has disappeared. Again, physics is made theologically orthodox.

On the other hand, theological implications follow from the way in which passive potency originates in God's will. Although passive potency serves to locate body within the cosmos, as a principle passive potency is neither natural nor material. Consequently, passive potency can serve to locate *anything*, physical or spiritual, which God wills to be located. Indeed, according to Duns, angels possess passive potency for place in the strict sense that it involves no contradiction to say that angels may be sent by God as his messengers and, on those occasions, operating as finite causes, angels complete their task by exercising passive potency for place and so occupy place.

Here, at least, Duns answers his initial questions: yes, angels can occupy place without entailing a contradiction. Because angels can occupy place, they can be present to their effects and so operate efficaciously as finite beings, finite causes. As finite causes occupying place, purely spiritual angels stand completely distinguished from God, whose uniqueness is hereby preserved perfectly. At this moment in the argument, Duns's theological requirements have been perfectly met, and there can be no doubt of satisfying theologians concerning the orthodoxy of this position.

But, as we saw above, Duns must also satisfy physicists. He quotes Aristotle, but then completely revises an Aristotelian/Averroist conception of place. The notion of passive potency which completes the location of angels in this place is not to be found in Aristotle's *Physics*—indeed, it is a thoroughly theological and/or

creatura corporali posset fieri et esse extra omnem creaturam corporalem. Et tamen in angelo est potentia passiva, qua potest esse in loco; et ipsa potentia vel fundatur immediate in eius substantia, vel in ipsa in quantum est natura limitata actualiter exsistens, vel in aliquo extrinseco angelo (quidquid sit illud). Et ideo non oportet quaerere aliquam intrinsecam rationem essendi angelum in loco, necessario, quia ibi nulla est—sed tantum est in ipso potentialitas passiva, qua potest esse in loco quia non repugnat sibi." On potency cf. A. B. Wolter, *The Transcendentals and Their Function in the Metaphysics of Duns Scotus* (St. Bonaventure 1946) 145–148.

metaphysical concept. Passive potency may locate angels without breaking the law of noncontradiction; but passive potency gives no sense of what such location would entail, or how it would occur. The physics of locating spiritual angels remains for Duns to complete.

IV HOW ANGELS OCCUPY PLACE

Duns distinguishes six characteristics of the body/place relation. He then considers angels in respect to each of these characteristics. Five of these characteristics involved in the body/place relation can be dismissed quickly, because they cannot apply to spiritual angels. The remaining property, which is the third discussed by Duns, is critical. With this property Duns hopes to establish a physics for the location of angels. And here we may possess the origin of the jibe concerning how many angels can dance on the point of a needle.

We can easily dismiss the five properties of place which pertain to the location of body but not to the location of purely spiritual angels:

(1) Place provides all body with a container which is immobile in the sense that place never moves, that is, place never changes place.[54] Body necessarily occupies place in this sense because, as actual, all body possesses "quantity," and quantity as actual must be someplace. Angels as pure spirit have no necessary relation to place because they have no necessary relation to matter, body, or "quantity." Angels *may* be in place, because it involves no contradiction; but they are never necessarily in place, because as spirit they do not require a container.[55]

(2) Body is lodged in place whenever it exists actually, because it exerts pressure on the inner sides of the containing place and thereby distends them.[56] Angels do not as spirit apply pressure on the sides of the containing place so as to distend them.

(3) This point constitutes the critical third characteristic of the place/occupant relation given by Duns and we shall return to it in a moment. Since the quantity of the place and the body are always the same, it is necessary that the quantity of the place be equal to that of the body. Here we possess the problem of how a place and its occupant fit together, as well as the related problem of how much place an angel requires in order to be "in place".

[54]Ibid. par. 232: "De secundo articulo dico quod—supposito primo—corpus 'quantum' est in loco in actu, quia in praecise continente actualiter; non enim potest esse in loco, quin illud ultimum (quod est proximum continens) faciat illud actu, quia facit latera corporis continentis distare. Secus autem est de parte in toto, quae non facit superficiem in potentia continentem, ipsam in actu; et ideo non est pars in toto sicut locatum in loco (IV *Physicorum*)."

[55]Ibid. par. 236 (cf. n. 53 above).

[56]Ibid. par. 237: "Supposito igitur isto primo, non oportet quod sit in loco in actu, quia non oportet quod sit in aliquo continente indivisibili actualiter existente; non enim facit latera continentis distare, et ideo non facit superficiem continentem esse in actu."

(4) Body and place are commensurate, such that the parts of the body correspond to the parts of the container and the entire body corresponds to the entire container.[57] Obviously angels do not occupy place in this sense, since as pure spirit they have no matter and, consequently, no parts.[58]

(5) Each body has a determinate place which lodges it.[59] Duns's single sentence here does not articulate the point fully. He may mean that all body is in place in a determinate way by virtue of the particular place which contains it. Of angels, Duns explains that they are in "this or that place" only because they are not ubiquitous.[60] That is, bodies are contained by place in a determinate way, while angels are determined to place only in a general way by the denial of ubiquity.[61]

(6) Body and place are determined to each other in virtue of the substantial form and determined qualities of the body.[62] Here Duns returns to something like natural place in Aristotle. One place conserves the substantial form and determined qualities of a body better than another place, which might corrupt them. An angel is never in place in this way, because pure spirit never relates to place in such a way as to be better conserved or more corrupted by one place than another.[63]

We can now return to point (3), the critical characteristic of the place/occupant relation: the equality of the occupant to its place. We say that a containing place is equal to its contained occupant.[64] In fact, Duns tells us, this determinateness is just that characteristic which allows two places to be dimensionally interchangeable, as

[57]Ibid. par. 233: "De tertio dico quod—propter eandem quantitatem—necessario coexigit corpus locum sibi aequalem.

"Et propter illud est in loco commensurative, ita quod pars superficiei contentae, et totum toti."

[58]Ibid. par. 245: "De quarto patet quod non est in loco commensurative, quia non habet partem et partem cum parte loci."

[59]Ibid. par. 234: "Quintum competit corpori ex determinato loco, locante ipsum."

[60]Ibid. par. 246: "De quinto dico quod est in hoc loco vel in illo, quia non est ubique. Et huius ratio quaerenda est.

"Dico quod licet aliquid possit esse secundum se in potentia passiva ad aliquod genus physicum, et non determinate in potentia ad aliquam speciem illius generis, tamen ab eodem reducitur illud ad actum generis et speciei: sicut, licet superficies (unde superficies) sit ex se determinata ad colorem, et non sit ex se determinata ad albedinem vel nigredinem, tamen ab eodem agente reducitur ad actum coloris et huiusmodi coloris, quia non est colorata nisi quia sic est colorata. Ita dico hic quod licet angelus sit in potentia ad 'ubi' in communi, et non ex se determinatus ad hoc 'ubi' vel illud, tamen ab eodem agente reducitur ad hoc ut sit actualiter in loco, et in hoc loco vel in illo adesse quo primo est in loco, producente ipsum supra creaturam corporalem continentem; sed ex tunc potest se ipsum reducere ad actum istum, sicut patebit in quaestione de motu angeli."

[61]Cf. Gilson (n. 28 above) 412.

[62]Duns Scotus, *Ordinatio* 2, dist. 2, pars 2, q. 2, par. 235: "Sextum in quantum est corpus naturale competit sibi, ex hoc scilicet quod—in quantum habet formam substantialem determinatam et qualitates determinatas—natum est ab aliquo locante conservari et salvari, et ab aliquo corrumpi: et quando continetur ab 'ultimo' illius quod natum est ipsum salvare, dicitur esse in loco naturali, licet naturalitas illa multum accidat rationi loci; pro tanto igitur est in loco naturali, quia est in locante naturaliter, id est in ultimo alicuius continentis quod natum est salvare contentum."

[63]Ibid. par. 247: "De sexto dico quod non est in loco aliquo naturaliter, quia tunc esset in alio loco violenter; tunc etiam aliquod corpus haberet naturalem habitudinem ad ipsum conservandum in loco, et aliud corpus ad ipsum corrumpendum."

[64]Cf. Gilson (n. 28 above) 411.

Euclid himself shows.[65] The crux of the problem rests on just how an angel as pure spirit possesses the determinateness to be in a particular place. Again, the problem of distinguishing between angels and God lurks in the background.

The problem is: an angel has no configuration, because it has no quantitative dimension.[66] Consequently, it might appear that an angel could occupy any place as small as one might wish, even a point, or any place as large as one might wish, even a quadrangle whose sides are extended to infinity.[67] But as we have already seen above, the possibility of occupying an infinite space, that is, of being ubiquitous, can belong only to God and must be denied to angels.

The problem for Duns here at the level of characterizing the place/occupant relation is no different from that solved at a more abstract level by passive potency: angels must occupy a determinate place in order to preserve the distinct uniqueness of God. The theological motive, which passive potency addresses earlier, reappears at the crucial moment within the physics of the place/occupant relation.

Angels, we might say, occupy a determinate place in an indeterminate way.

[65]Duns Scotus, *Ordinatio* 2, dist. 2, pars 2, q. 2, par. 238: "De tertio autem est dubium, et de hoc mota est secunda quaestio. Conceditur tamen quod non potest esse in loco quantumcumque magno, quia hoc est proprium Dei. Et ex hoc videtur non posse esse in loco quantumcumque parvo, ex 35 I Euclidis; vult enim ibi Euclides—quaere eum ibi."

[66]Ibid. par. 239–240: "Ex hoc arguo sic: quidquid potest esse in uno aequali, potest esse in altero, si sibi non repugnat figuratio aliqua secundum quam unum distinguitur ab alio; sed in angelo nulla figuratio loci, in quo est, sibi repugnat; igitur si potest esse in uno aequali, et in altero—et per consequens, si potest esse in quadrato parvo, et non repugnat sibi esse in quadrato quantumcumque stricto (quod oportet dicere, dicendo quod non repugnat sibi esse in quantocumque loco), videtur quod non repugnat sibi esse in loco quantumcumque longo, quia quadrangulus est aequalis ipsi quadrato parvo, in quo potest esse.

"Istud declaratur per oppositum in corpore naturali. Ideo enim aqua, quae potest esse in quadrato, non potest esse in quadrangulo quantumcumque longo, quia non potest esse in loco quantumcumque stricto; et ideo non potest quantumcumque protendi secundum magnitudinem: non enim potest protendi secundum longitudinem nisi constringatur secundum latitudinem, et si non potest in infinitum constringi secundum latitudinem, non potest in infinitum protendi secundum longitudinem. Oppositum est in proposito: si enim angelus non determinet quantumcumque locum in minus (quia tunc poterit esse in loco quantumcumque stricto et strictiore), igitur etc."

[67]Ibid. par. 239–242. For par. 239–240 see n. 66 above. Par. 241–242 read: "Praeterea, si quantitas aliqua virtutis est in angelo secundum quam potest esse in aliquo loco proportionaliter secundum ultimum potentiae suae (puta iste tantum et ille tantum), posset tamen secundum ultimum potentiae suae facere se in minore isto quantumcumque, sibi adaequato (hoc autem 'posse' est alicuius virtutis activae in eo, quia in potestate sua est ut possit ea uti ad effectum sibi adaequatum, vel non)—igitur magis posse habere istam quantitatem in potestate sua, est perfectius, quia maiorem habet potentiam activam: et ita est potens uti ista virtute activa in infinitum, ad causandum vel essendum in minore et minore loco quam sit ille locus sibi adaequatus; igitur potentiam habet infinitam. Consequens est inconveniens, igitur et antecedens; sicut igitur si posset in infinitum esse in maiore et maiore loco, concluderetur infinitas virtutis eius, ita concludetur infinitas virtutis eius si posset esse in loco minore et minore semper in infinitum.

"Si tamen posset esse in puncto, vel non—non videtur ratio necesssaria ad unam partem nec ad aliam: quia licet sit indivisibilis, non tamen habet indivisibilitatem limitatam sicut punctus, et ideo non oportet ipsum esse in puncto sicut in loco; nec forte repugnat sibi esse in puncto sicut in loco, quia nullum inconveniens videtur ex hoc inferri—quia si ex hoc inferatur quod non posset moveri localiter nisi spatium esset ex punctis, non sequitur (posset enim immediate ex loco punctali facere se in continuum, cuius continui punctus est terminus)."

That is, occupancy is neither natural to an angel in the sense that it is natural to a body, nor is it repugnant to his nature. His nature is neutral to place and so can be contained in a determinate place, however large or small, in an indeterminate way. Since the way an angel is contained in place is indeterminate, nothing more can be said about it.[68] As Duns puts it, just as we say of a surface that it must be colored, but we cannot say that it must be white or that it must be black, so we say of an angel that (unlike God) it must occupy place, but we cannot say that it occupies this or that determinate place.[69]

An angel can then occupy a "point," the smallest place possible; and, indeed, since angels are pure spirit, they could even share the occupancy of the point. How many angels could share in this occupancy? Obviously more than one, but fewer than an infinite number, since an actual infinity could never occupy a particular place. We may note here how reasonable this position looks, given the preceding argument. But at the same time, how odd it seems to say that more than one but fewer than an infinite number of angels may occupy a point. We might speculate that as later readers turn to Duns, they tend more and more to condense the arguments for the sake of arriving more quickly at the conclusion, until finally the argument drops out altogether and the conclusion stands alone. The origin of the jibe concerning how many angels can dance on the point of a needle is obscure, but surely we possess a good candidate in the conclusion to this argument.[70]

V. CONCLUSION

We may now turn to an evaluation of Duns's account of place and its occupancy by angels. Several points may be made concerning this argument: (1) that Duns has traveled quite a distance from Aristotle's physics with which he begins; (2) that his own analysis spans the distinction between theology and physics, and so reveals a

[68]Ibid. par. 249: "Ex isto sexto patet quod ista potentia passiva (quae est in angelo ad essendum in loco) non est naturalis nec violenta, sed neutra—quia nec istud passum inclinatur ex se naturaliter ad istam formam, nec ad oppositum, sed neutro modo se habet ad ista, sicut superficies ad albedinem vel nigredinem indifferenter se habet."

[69]Ibid. par. 246 (n. 60 above).

[70]The question of how many angels can dance on the point of a needle, or the head of a pin, is often attributed to "late medieval writers". In his standard reference work, Mencken refers it to "various writers c. 1400." In point of fact, the question has never been found in this form and, I believe, may not exist. It stands as a jibe and represents a hostile attitude to all discussions like this one in Duns. Such hostility is not characteristic of fourteenth-century Scotists such as John of Ripa, William Alnwick, or Robert Cowton. (For a good bibliography of these Scotists, cf. Gilson [n. 6 above] 763–773.) For an outstanding example of a serious argument against the Scotist position, see the writings of William of Ockham where the problem of angels in place is treated very seriously in itself, and is also connected with problems concerning transubstantiation; cf. *De Sacramento*, chaps. 11–14, 16, 25–30. Rather, hostility toward this type of question occurs only in much later post-Renaissance thinkers for whom these discussions seem remote and obscure. Hence we can speculate that the jibe concerning angels dancing on the point of a needle is a general reference to discussions like this one in Duns and the responses that it generated, rather than a specific reference to a question quoted directly.

critical meeting point between them; (3) that the problem here, namely, that angels which are pure spirit must occupy place as distinct from God who can act at any distance, has a second life in a more modern guise within both physics and philosophy. A glance at this second life provides a fuller sense of the success of Duns's account.

(1) The distance between Duns and Aristotle is considerable. The problem in Aristotle's *Physics* of bodies including matter and acting upon one another becomes for Duns the problem of any cause/effect relation, which may be body but can also be pure spirit in the case of angels. Aristotle's requirement that bodies touch one another is replaced by Duns's requirement that a cause be "present" to its effect. As we have discussed at length above, Aristotle's entire doctrine of place is mathematicized through the notion of dimensional identity; and location within the cosmos, which is natural for Aristotle, depends upon the will of God for Duns. The final principle which for Duns locates angels, passive potency, cannot be found in Aristotle's *Physics*. The conclusion seems clear that here the physics of Duns is "new" from the point of view of Aristotle's position which Duns quotes as he begins his account.

(2) Again as I have suggested above, the consistent motivation behind Duns's revision of Aristotle's account of place lies with theology. The preservation of God's omnipotency and infinity explicitly motivates not only the account as a whole, but the critical moments of the account both at a theological level and at the level of physics. There can be no doubt that the account satisfies the theological goal of orthodoxy as defined by the Condemnation of 1277, by preserving God's uniqueness as infinite and omnipotent. There also can be no doubt that its physics remains problematic, and it is to this final point that we can now turn.

(3) One may say fairly that Duns's solution to the problem of angels in place—that angels occupy place and are determined to occupy place indeterminately—remains problematic. The related issue of angels occupying a point has a famous career. William of Ockham is unrelenting in his criticism of Duns on this point.[71] With the rise of Newtonian science the question of angels in place comes to stand for all that is ridiculous in medieval theology and science.

I would like, however, to close with the suggestion that the problems that Duns considers in the context of God and angels remain as problems in post-Newtonian science and philosophy—indeed, they are with us today. Angels, according to Duns, must be present to their effects, but God can act at any distance. In modern terms these problems become pure mind present in body on a Cartesian model and the problem of force, or gravity, which is sometimes called action at a distance in Newtonian physics.

[71]Cf. William of Ockham, *Reportatio*, IV, q. 4, C, G, N, O; q. 5, C, D: *Quodlibet* IV, q. 20. For reasons which lie beyond the scope of this paper, the problem of "quantity" and the implications of immateriality which are crucial to Duns's discussion of angels here appear largely in William of Ockham's discussions of the host and transubstantiation; cf. G. Leff, *William of Ockham: The Metamorphosis of Scholastic Discourse* (Manchester 1975) 600ff.

In Newtonian terms, the problem of action at a distance becomes the problem of gravity. With gravity, Newton was regularly accused of introducing "occult qualities" into science. Gravity as a force in Newtonian physics possesses important characteristics of God in post-1277 theology, and so Newton is often accused of positing a "hidden God." Newton defends his position in a number of ways, which shows how seriously he felt this criticism.[72] Like Duns, neither Newton nor anyone within the Newtonian framework has ever satisfactorily answered this problem. Rather, "gravity," looked at historically, comes to have the status of an observed fact rather than an explanatory principle.[73]

The problem of mind present in body also has a long career. Mind as immaterial in Descartes strongly resembles angels in Thomas and Duns. The problem of locating mind in a body for Descartes and his followers perfectly parallels Duns's problem of putting angels in place. Descartes too seems to admit the impossibility of explaining how mind is present in body.[74] He merely says that we may observe that it is so present. No solution has yet been found: post-Cartesian philosophy either redefines soul and body, declares a solution to be impossible, or struggles yet with the original problem.

We noted throughout this examination of Duns that his motives are in a primary sense theological. These motives are part of the intellectual heritage of the Condemnation of 1277, namely, the protection of God's omnipotence and infinity. We may conclude that he is successful theologically, but only at the price of an enormous ambiguity for science and philosophy as distinct from theology. That ambiguity, which remains unresolved, may be the most important—in the sense of the richest—heritage of the problem of angels in place.

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[72]N. Chomsky, *Language and Mind*, enl. ed. (New York 1968) 7.

[73]Ibid. 8.

[74]This problem is, of course, notorious in Descartes and one of the major areas of criticism by his detractors. For the classic texts, cf. *Meditations on First Philosophy*, Meditation VI and Letter to Regius mid-December 1641, and Letter to Princess Elizabeth in response to her letter of 6/16 May 1643. These may be found in any standard edition of Descartes's works.